



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

# SCIENCE

A WEEKLY RECORD OF SCIENTIFIC PROGRESS.

ILLUSTRATED.

Entered in the Office of the Librarian of Congress, at Washington, D. C.

No. 38—Vol. II.

March 19, 1881.

Price 10 Cents.

## LABOR-SAVERS LENGTHEN LIFE.

OUR aim is to furnish improved tools and appliances for those who work at the desk or in the study. Many of our articles are unique, and are the result of the focalized experience and skill of a large body of literary workers. Thus selecting the best, we reduce the cost to the minimum by manufacturing in large quantities. Our customers may thus be sure of getting the best devices at the lowest prices.

All interested are cordially invited to visit our stores, without feeling under obligations to purchase. It will repay you to see the many new and useful improvements we are introducing. They are intended for wide-awake minds who are seeking the best and surest ways of record, arrangement, and communication, and for those who enjoy comfortable reading and writing in comfortable surroundings.

An Illustrated Catalog and Price List of 400 articles is free to applicants, and includes every requisite needed for fitting up a desk, study or library.

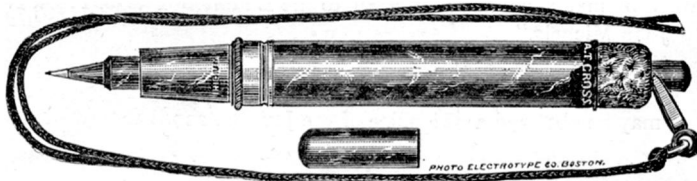
### THE PERFECTED STYLOGRAPHIC PEN,

A. T. CROSS' PATENT.



### A PENCIL THAT WRITES INK, NEVER NEEDS SHARPENING, AND NEVER WEARS OUT.

Recent patented improvements have obviated all previous defects, and placed it far ahead of similar pens. Beware of imitations, and get the best and only Perfect Pen. Warranted to suit or no sale.



Our latest pattern, the **LITTLE GIANT**, is the most perfect outfit for writing ever made. It is Pen, Holder, and Inkstand, all in one; but three inches long, and holds ink enough for fifty pages of foolscap. May be carried in pocket, or on watch chain or eyeglass cord. Made in great variety of style and finish.

PRICE, \$2.50 to \$5.00.

### We instance a few of our many Specialties for Literary and Desk Work:

**THE ECONOMY** Index, Study Table, Reading Desk, Eye Shade, Student Lamp, Book Support, Inkstand, Sloping and Revolving Bookcases, etc., are each selected by experts as the best to be had for the money.

**SLOPING BOOKCASE.**—Entirely new—Six long shelves, periodical rack, heavy castors, fine finish, holds more for the money than common cases, as movable as an easy chair. \$15, ash; \$17.50, walnut.

**STUDENT'S FOLDING TABLE.**—Handsome, strong enough to hold safely 300 volumes, larger than a writing desk, folds instantly, occupies only the space of a table leaf, can be carried easily anywhere by a child. Price \$3. Inlaid chess board, or black walnut, \$4.

**SAVE YOUR EYES AND YOUR BACK.**—Clark's Portable Book Rest will do more than anything else to correct the tendency to near-sightedness and round shoulders. The highest certificates from eminent physicians and oculists. Five styles, 15 to 50 cents each. Postage, 2 cents to 13 cents each.

**UTILITY SCRAP BOOKS.**—No paste, pins, or springs, self-indexed. Of the 35 people who looked at it first, 25 bought copies. Price, \$1.50.

**THE BEST ARTIFICIAL LIGHT KNOWN** is the Genuine German Student Lamp, made by the original inventor, Kleemann, with improvements suggested by eminent American oculists. Extra large size, \$4.50, brass; \$5.50, nickel. 12 wicks, packed free for express; sold as cheap as inferior imitations.

**SAVE YOUR EYES.**—The Economy Patent Eye Shade, ventilated, reversible, self-adjusting, fits any head; no rubbers; no strings; three widths; the only perfect device to protect the eyes. Warranted to suit. 20 cents each.

**PERFECT PEN-GAGE INKSTANDS.**—The only perfect scientific Inkstand yet made. Sold on trial, warranted the best and to save their cost in ink. \$1.30 to \$2.50 each.

**HAMBLER POCKET FOR PEN AND PENCIL.**—A simple, cheap device that carries pencil or Stylographic pen more conveniently than a coat or vest pocket, and from which *they cannot be lost*. Men who have lost several dollars worth of pencils and pens when stooping have tried this, and say they would not be without it for ten times its cost. Price, 20c. for 2 pencils, to 40c. for 4 pencils. Russia leather, with safety attachmen for coat, vest or dress.

### READERS AND WRITERS ECONOMY COMPANY,

25-33 FRANKLIN STREET, BOSTON.

4 BOND STREET, NEW YORK.

69 STATE STREET, CHICAGO.

# SCIENCE:

A WEEKLY JOURNAL OF SCIENTIFIC PROGRESS.

## ILLUSTRATED.

### To Correspondents.

All communications should be addressed to the Editor—box 3838, P. O., New York—with name and address of writer, not necessarily for publication without consent.

Scientific papers and correspondence intended for publication should be written *legibly* on one side only of the paper. Articles thus received will be returned when found unsuitable for the Journal.

Those engaged in Scientific Research are invited to make this Journal the medium of recording their work, and facilities will be extended to those desirous of publishing original communications possessing merit.

Proceedings of Scientific Societies will be recorded, but the abstracts furnished must be signed by the Secretaries.

Both questions and answers in "Notes and Queries" should be made as brief as possible; an answer appearing to demand an elaborate reply may be written in the form of an article.

### To Subscribers.

Terms of subscriptions for SCIENCE will be \$4 a year, payable in advance. Six months, \$2.50. Single copies 10 cents.

Subscriptions forwarded by mail should be addressed to the Editor, Box 3838, P. O., New York, and Post-office Orders made payable to "John Michels."

### To Advertisers.

Terms for advertising may be obtained at the office of the Journal, 229 BROADWAY, New York.

### CLUB RATES.

	Subscrip- tion.	With SCIENCE.		Subscrip- tion.	With SCIENCE.
Analyst .....	\$2.00	\$5.50	Iron .....	7.50	9.34
Appleton's Monthly .....	3.00	6.26	Journal of the Telegraph .....	2.00	5.50
AMERICAN NATURALIST .....	4.00	7.20	London Lancet .....	5.00	7.50
AMERICAN JOURNAL OF SCIENCE .....	6.00	8.50	Magazine of American History .....	2.00	5.50
American Journal of Microscopy .....	1.00	4.70	MINING AND SCIENTIFIC PRESS .....	4.00	6.40
American Machinist .....	3.00	6.70	Nature .....	6.00	9.15
American Monthly Microscopical Journal .....	1.00	4.80	N. Y. Medical Journal .....	4.00	7.00
American Manufacturer and Iron World .....	4.25	7.00	New England Journal of Education .....	3.00	6.40
Boston Journal of Chemistry .....	1.00	4.75	North American Review .....	5.00	7.75
Chicago Medical Review .....	2.00	5.50	Operator .....	1.00	4.80
Chicago Field .....	4.00	7.00	POPULAR SCIENCE MONTHLY .....	5.00	6.00
Druggist .....	1.60	5.25	Sanitary Engineer .....	3.00	6.50
Druggists' Circular .....	1.50	5.25	Practical American .....	1.50	5.00
Educational Monthly (Barnes) .....	1.50	5.20	Pacific Rural Press .....	4.00	7.00
Engineering News .....	3.00	6.25	Scribner's Monthly .....	4.00	7.20
Engineering and Mining Journal .....	4.00	7.00	Science Observer .....	.50	4.40
Education .....	4.00	7.00	SCIENTIFIC AMERICAN .....	3.20	6.56
Engineering Magazine .....	5.00	8.25	" " SUPPLEMENT .....	5.00	8.00
Harper's Magazine .....	4.00	7.00	" " WITH SUPPLEMENT .....	7.00	9.60
Harper's Weekly .....	4.00	7.20	Southern Medical Record .....	2.00	5.40
Harper's Bazar .....	4.00	7.20	Student .....	1.00	4.75
Harper's Young People .....	1.50	5.20	St. Nicholas .....	3.00	6.40
HUMBOLDT LIBRARY .....	3.00	6.25	Young Scientist .....	.50	4.30
International Review .....	5.00	8.00			

### BOOKS AT TRADE PRICE.

Among the facilities we offer to *regular subscribers* is the purchase of BOOKS at trade prices, making a reduction ranging from 20 to 40 per cent. on the publishing prices. Buyers of a few books may thus, during a year, save the full cost of subscription to "SCIENCE." Send name of Book, Author and Publisher and in reply a postal card will be sent, stating amount to be remitted.